

• • R E M A R K S • •

The Official Action of February 11, 2002 has been thoroughly studied. Accordingly, the changes presented herein for the application, considered together with the following remarks, are believed to be sufficient to place the application into condition for allowance.

By the present amendment, claim 4 has been changed to recite that the high velocity water jet streams form protuberances in the nonwoven fabric. Support for this limitation can be readily found in Figure 2 and numerous portions of the specification.

In addition, new dependent claim 6 has been added which recites that the support has support has a plurality of protuberances formed on a surface thereof and the mechanical entanglement of the fibrous mixture and formation of the protuberances are performed in a common step. Support for this limitation can be found in the discussion of Figure 4 found in the last paragraph on page 8 of applicants' specification.

New dependent claim 7 has also been added which recites that the plurality of protuberances have conical or pyramidal shapes. Support for this limitation can be found on page 7, lines 10 - 16.

Entry of the changes to the claims is respectfully requested.

Claims 4-7 are pending in this application.

Claims 4 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over EP 373,974 to Manning et al. in view of U.S. Patent No. 5,573,841 to Adam et al.

For the reasons set forth below, it is submitted that all of the pending claims are allowable over the prior art of record and therefore, the outstanding rejection of the claims should properly be withdrawn.

Favorable reconsideration by the Examiner is earnestly solicited.

The Examiner has relied upon Manning et al. as disclosing a method of making a nonwoven fabric comprising the steps of forming a slurry of pulp fibers and thermoplastic fibers, depositing the fibers to form a wet sheet and hydraulically entangling the fibers.

The Examiner concedes that Manning et al. fails to teach applicants' claimed weight percent of fibers in the slurry.

Accordingly the Examiner has relied upon Adam et al. as teaching "that in forming a fibrous slurry that slurry should contain about 0.01 to 1.5 percent by weight of fibers.

In combining the teachings of Manning et al. and Adam et al. the Examiner has taken the position that it would have been obvious to "...have formed the slurry of Manning et al so that it comprised 0.01 to 1.5 percent by weight of fibers" because "Adam teaches that this amount of fibers is conventional when forming a web by the wet-laid method."

Manning et al. teaches a highly absorbent nonwoven fabric that is formed from four (4) preformed "wet-laid webs 11, 12, 13 and 14" that are subjected to water jet streams to form a "hydroentangled web 40." After web 40 is formed it is subjected to an embossing process in which rows of embossments 42' and 44' are impressed into opposite sides of the web 40.

As presently amended, applicants' independent claim 4 require that the step of subjecting said wet sheet to high velocity water jet streams effects (i.e., causes) mechanically entangling of the fibrous mixture "and produce[s] protuberances in the resulting nonwoven fabric."

Manning et al. does not teach the use of water jets to mechanically entangle the fibers of the four (4) preformed wet-laid webs and to form protuberances in the resulting web.

Moreover, inasmuch as Manning et al. combine four (4) performed wet-laid webs together by hydroentanglement, it is unclear if protuberances could even be formed from such a multi-layered process. Certainly Manning et al. fail to teach or suggest that such a process is possible, let alone obvious for any reason.

Here it is noted that Manning et al.'s embossing cannot form the protuberances of the present invention, inasmuch as applicants' protuberances are formed during the mechanical entanglement and therefore result in a nonwoven fabric that has a cross sectional shape that has a wave form or undulations. Manning et al.'s method of embossing which is performed after web 40 is produced would necessarily result in physical changes to web 40.

Applicants' manner of forming protuberances while mechanically entangling the fibers effects rearrangement of the fibers as they are entangled. This is discussed in applicants' specification on page 8, lines 18 - 23. Manning et al's method of embossing cannot rearrange the fibers in the same manner.

Therefore, applicants' process produces a structural difference over Manning et al.

The Examiner's further reliance upon Adam et al. does not overcome the differences between applicants' invention and Manning et al. as discussed above.

Therefore the Examiner's further reliance upon Adam et al. does not render applicants' claimed invention obvious.

Based upon the above distinctions between the prior art references relied upon by the Examiner and the present invention, and the overall teachings of the references, properly considered as a whole, it is respectfully submitted that the Examiner cannot rely upon the references as required under 35 U.S.C. §103 to establish a *prima facie* case of obviousness of applicants' claimed invention.

It is, therefore, submitted that any reliance upon the references would be improper inasmuch as the references do not remotely anticipate, teach, suggest or render obvious the present invention.

It is submitted that the claims, as now amended, and the discussion contained herein clearly show that the claimed invention is novel and neither anticipated nor obvious over the teachings of the prior art of record, and the outstanding rejection of the claims should hence be withdrawn.

Therefore, reconsideration and withdrawal of the outstanding rejection of the claims and an early allowance of the claims is believed to be in order.

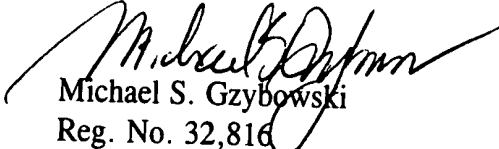
It is believed that the above represents a complete response to the Official Action and reconsideration is requested.

If upon consideration of the above, the Examiner should feel that there remains outstanding issues in the present application that could be resolved, the Examiner is invited to contact applicants' patent counsel at the telephone number given below to discuss such issues.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including

extension of time fees, to Deposit Account No. 02-0385 and please credit any excess fees to such deposit account.

Respectfully submitted,


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Marked-Up Copy of the Claims
As Amended on April 4, 2002

4. (Twice Amended) A method of making a nonwoven fabric containing thermoplastic synthetic microfibers, said method comprising the steps of:

a. providing a wet sheet from a slurry containing about 0.5 to 20 % by weight of a fibrous mixture dispersed in water, said fibrous mixture [comprising,] comprising about 90 to 10 % by [weight,] weight of thermoplastic fibers that are [being] about 7 to 30 mm long and as fine as about 0.1 to 0.8 d mixed with about 10 to 90 % by weight of pulp fibers [being] that are about 2 to 7 mm long; [long, in about 10 to 90 % by weight;]

b. placing said wet sheet on a support; and

c. subjecting said wet sheet to high velocity water jet streams of about 50 to 200 kgf/cm² [for] to effect mechanically entangling said fibrous [mixture.] mixture and produce protuberances in the resulting nonwoven fabric.

New claims 6 and 7 were added as follows:

--6. A method according to Claim 4 wherein said support has a plurality of protuberances formed on a surface thereof and the mechanical entanglement of the fibrous mixture and formation of the protuberances are performed in a common step.--

--7. A method according to Claim 4, wherein said plurality of protuberances have conical or pyramidal shapes. --